What is claimed is:

1. A low temperature anodizing electrolyte for anodizing a valve metal or an alloy thereof, comprising:

a) a protic solvent selected from the group consisting of alkylene glycols, polyalkylene glycols, alkylene or polyalkylene glycol mono ethers, and combinations thereof; and

b) a weak inorganic or organic acid, or its salt;

c) wherein the protic solvent and the weak inorganic or organic acid, or its salt, are at a predetermined ratio of volume or weight percentage of the electrolyte; and

d) wherein the electrolyte is used at a low temperature for anodizing valve metals that results in little to no gray-out.

2. The electrolyte of claim 1 wherein the low temperature is about 60°C and below.

3. The electrolyte of claim 1 wherein the weak inorganic or organic acid or its salt is selected from the group consisting of phosphoric acid, ammonium dihydrogen phosphate, boric acid, ammonium borate, acetic acid, ammonium acetate, other organic acids or their salts, and combinations thereof.

4. The electrolyte of claim 1 wherein the alkylene glycols are selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, tetraethylene glycol, propylene glycol, trimethylene glycol, diepropylene glycol, glycerol, 2-methyl-1,3-propanediol, 1,4-butanediol, 2,3-butanediol, 2,2-dimethyl-1,3-propanediol, 2,4-pentanediol,

2,5-hexanediol, and combinations thereof; the polyalkylene glycols are selected from the group consisting of polyethylene glycols, polypropylene glycols, polyethylenepropylene glycol copolymers, and combinations thereof; the alkylene or polyalkylene glycol mono ethers are selected from the group consisting of ethylene glycol methyl ether, ethylene glycol ethyl ether, ethylene glycol butyl ether, diethylene glycol ethyl ether, diethylene glycol methyl ether, diethylene glycol butyl ether, dipropylene glycol methyl ether, tripropylene glycol methyl ether, and combinations thereof.

5. The electrolyte of claim 1 wherein the protic solvent is up to about 90 volume percentage of the electrolyte.

6. The electrolyte of claim 5 wherein the protic solvent ranges from about 60 to about 85 volume percentage of the electrolyte.

7. The electrolyte of claim 1 wherein the protic solvent has a molecular weight of less than about 1000.

8. The electrolyte of claim 1 wherein the weak inorganic or organic acid, or its salt, is up to about 15 volume or weight percentage of the electrolyte.

9. The electrolyte of claim 8 wherein the weak inorganic or organic acid, or its salt, ranges from about 1 to about 10 volume or weight percentage of the electrolyte.

10. The electrolyte of claim 2 wherein the low temperature is around 60°C and below.

11. A low temperature-anodizing electrolyte for anodizing a valve metal or an alloy thereof, comprising:

a) a protic solvent selected from the group consisting of alkylene glycols, polyalkylene glycols, alkylene or polyalkylene glycol mono ethers, and combinations thereof and having a molecular weight of less than about 1000;

b) a weak inorganic or organic acid or its salt; and

c) the low temperature is below about 60°C;

d) wherein the protic solvent and the weak inorganic or organic acid or its salt are at a predetermined ratio of volume or weight percentage of the electrolyte; and

e) wherein the electrolyte is used at a low temperature for anodizing valve metals that results in little to no gray-out.

12. The electrolyte of claim 11 wherein the weak inorganic or organic acid, or its salt, is selected from the group consisting of phosphoric acid, ammonium dihydrogen phosphate, boric acid, ammonium borate, acetic acid, ammonium acetate, other organic acids or their salts, and combinations thereof.

13. The electrolyte of claim 11 wherein the alkylene glycols are selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, tetraethylene glycol, propylene glycol, trimethylene glycol, diepropylene glycol, glycerol, 2-methyl-1,3-propanediol, 1,4-butanediol, 2,3-butanediol, 2,2-dimethyl-1,3-propanediol, 2,4-pentanediol, 2,5-hexanediol, and combinations thereof; the polyalkylene glycols are selected from the group consisting of polyethylene glycols, polypropylene glycols, polyethylenepropylene glycol

copolymers, and combinations thereof; the alkylene or polyalkylene glycol mono ethers are selected from the group consisting of ethylene glycol methyl ether, ethylene glycol ethyl ether, ethylene glycol butyl ether, diethylene glycol ethyl ether, diethylene glycol methyl ether, diethylene glycol butyl ether, dipropylene glycol methyl ether, tripropylene glycol methyl ether, and combinations thereof.

14. The electrolyte of claim 11 wherein the protic solvent ranges from about 60 to about 85 volume percentage of the electrolyte.

15. The electrolyte of claim 11 wherein the weak inorganic or organic acid or its salt ranges from about 1 to about 10 volume or weight percentage of the electrolyte.

16. A process for anodizing a valve metal or an alloy thereof comprising conducting the anodization at a temperature around and below 60°C in an electrolyte, comprising the steps of:

a) a protic solvent selected from the group consisting of alkylene glycols, polyalkylene glycols, alkylene or polyalkylene glycol mono ethers and combinations thereof and having a molecular weight of less than about 1000; and

b) a weak inorganic or organic acid or its salt;

c) wherein the protic solvent and the weak inorganic or organic acid or its salt are at a predetermined ratio of volume or weight percentage of the electrolyte; and

d) wherein the electrolyte is used at a low temperature for anodizing valve metals that results in little to no gray-out.

17. The process of claim 16 wherein the weak inorganic or organic acid, or its salt, is selected from the group consisting of phosphoric acid, ammonium dihydrogen phosphate, boric acid, ammonium borate, acetic acid, ammonium acetate, other organic acids or their salts, and combinations thereof.

18. The process of claim 16 wherein the alkylene glycols are selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, tetraethylene glycol, propylene glycol, trimethylene glycol, diepropylene glycol, glycerol, 2-methyl-1,3-propanediol, 1,4-butanediol, 2,3-butanediol, 2,2-dimethyl-1,3-propanediol, 2,4-pentanediol, 2,5-hexanediol, and combinations thereof; the polyalkylene glycols are selected from the group consisting of polyethylene glycols, polypropylene glycols, polyethylenepropylene glycol copolymers, and combinations thereof; the alkylene or polyalkylene glycol mono ethers are selected from the group consisting of ethylene glycol methyl ether, ethylene glycol ethyl ether, ethylene glycol butyl ether, diethylene glycol ethyl ether, diethylene glycol methyl ether, diethylene glycol butyl ether, dipropylene glycol methyl ether, tripropylene glycol methyl ether, and combinations thereof.

19. The process of claim 16 wherein the protic solvent ranges from about 60 to about 85 volume percentage of the electrolyte.

20. The process of claim 16 wherein the weak inorganic or organic acid or its salt ranges from about 1 to about 10 volume or weight percentage of the electrolyte.